DOCUMENT RESUME

ED 456 552 EA 031 253

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TITLE An Exploratory Study of the Impact of Charter Schools on Reducing the White-Minority Achievement Gap in North Carolina.

INSTITUTION SERVE: SouthEastern Regional Vision for Education.

PUB DATE 2001-03-22

NOTE 25p.; Paper presented at the Annual Meeting of the North Carolina Association for Research in Education (Charlotte, NC, March 22, 2001). Carolyn Cobb, Gongshu Zhang, Grova Bridges, and Olinda Williams contributed to the study.

AVAILABLE FROM Program on Education Leadership, SERVE, University of North Carolina at Greensboro, P.O. Box 5367, Greensboro, NC 27435.

PUB TYPE Numerical/Quantitative Data (110) -- Reports - Research (143) -- Speeches/Meeting Papers (150)

EDRS PRICE MF01/PC01 Plus Postage.

DESCRIPTORS *Academic Achievement; *Charter Schools; *Educationally Disadvantaged; Elementary Secondary Education; Equal Education; Public Schools

IDENTIFIERS *North Carolina

ABSTRACT

An important challenge facing education today is the difference in academic achievement among students of different ethnic and racial backgrounds. This situation prompted a study to examine the impact of charter schools on North Carolina's white-minority achievement gap. Examination of test-score gaps between disadvantaged African-American minority and White students in regular North Carolina public schools provides a benchmark by which to examine the gap-reduction benefit of charter schools serving disadvantaged minorities. Because of the quantitative-descriptive research design used and variables such as poverty level, learning disabilities, and behavioral and emotional handicaps not controlled for, no inferences can be drawn from study results that charter schools reduce the achievement gap. Study results show that charter-school student achievement varies at least as widely as it does in regular district public schools. However, six charter schools demonstrated reduced achievement gaps, suggesting the need for further research, be done to explore why, and why at so few schools. No recommendations can be made to policymakers and practitioners at this time because of the exploratory nature of this study. The report includes 15 references, 2 figures, and 8 tables. (RT)

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Paper Presented at the
2001 NCARE Annual Meeting
Charlotte, North Carolina
March 22, 2001

For their contributions to this study, the authors thank Carolyn Cobb and Gongshu Zhang (Evaluation Section) and Grova Bridges and Olinda Williams (Office of Charter Schools) of the North Carolina Department of Public Instruction. (Results expressed in this study do not necessarily reflect the position of the North Carolina Department of Public Instruction or its staff.)

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An Exploratory Study of the Impact of Charter Schools on Reducing the White-Minority Student Achievement Gap in North Carolina

Introduction

One of the greatest challenges facing education today is the difference in achievement among students of varying ethnic and racial groups. As a nation (and as North Carolinians) we have ostensibly aimed to educate all of our youth; yet evidence exists which suggests that we have neither uniformly attempted nor succeeded in the effort, especially in the case of economically disadvantaged African-American students. Haycock (1990, p. 53) exposed the fundamental problem over a decade ago in stating: "The notion here somehow is that we educate all kids the same. But somehow, Black kids, Brown kids, and poor kids don't learn as much. That is a serious misconception. In fact, we do not educate all children the same way."

Historically, Edmonds (1979) and Lezotte's (1989) Effective Schools' research indicated that some schools tended to educate students successfully without regard to students' categorical membership. That is, students within the top quartile of achievement were as likely to be children of color and poverty as children who are White and economically advantaged (Sudlow, 1985). Eventually, most 20th century educators came to believe that schools could make a positive, measurable difference in student achievement regardless of racial and socioeconomic status. Yet the student achievement gap stubbornly persists into the 21st century. The problem provokes the question: Why?

Since the 1970s, researchers have attempted to explain the White-Minority achievement gap (e.g., Coleman, 1972; Jencks et al., 1972). Building on extant achievement gap research and literature, Bingham (1994) compiled a taxonomy of gap theories including those associated with individuals (genetic difference theory), family and community (cultural deprivation theory), home-school interaction (cultural difference theory), school itself (effective schools theory), and society and power structures (critical theory). The theories suggest a continuum of possible interventions ranging from the ideographic to the societal.

Although educators have tended to favor gap reduction solutions based on effective schools theory (Hassel, 2001), a persistent note of discord has resonated among

critical theorists impatient for change and improvement. Representing this perspective, Hilliard dismissed what he termed false but popular causes such as socioeconomic status and cultural diversity: "The real cause of the achievement gap is the differential treatment that students receive. . . We always talk about the achievement gap, not the treatment gap (Willis, 1993)." Thus the stage was set for the school choice movement erupting in the 1990s and the problem addressed in the present study.

Problem Statement

Concerned by disparate treatment and outcomes in regular public schools and galvanized by the prospect of increasing academic and social performance, parents of African-American students across the United States have responded to the school choice movement. Although vouchers have generally eluded public embrace (27% of African-American and 15% of White parents think vouchers are an "excellent" idea, according to one poll, Public Agenda, 1998), charter schools have spread like wildfire, including the statutory provision for 100 charters in North Carolina. Nationally, 36 states, the District of Columbia, and Puerto Rico have signed into law charter school legislation. The US Department of Education estimated that as many as 1790 charter schools operated in 1999-2000, while the Center for Education Reform estimated that 350,000 students attended these schools (US Department of Education, 2001). Many parents, particularly those of African-American children, have enrolled their children in public charter schools wherever state law has provided for their existence.

Minority student participation in the charter school option is revealed in the US Department of Education's fourth-year national study of charter schools (Nelson, 2000) which found that, on average, charter schools in 1998-1999 enrolled a much larger percentage of African-American students (27% versus 17%) than all public schools in the 27 states with open charter schools. Mirroring the national trend, 47.3% of North Carolina students enrolled in charter schools were African-American, versus 31.8% for all public schools in the state. Notably, charters nationally also served a slightly higher percentage of students eligible for free or reduced-price lunch than all public schools (39% versus 37%) in the 27 states with open charters. By contrast, North Carolina charters served a slightly lower percentage (34.3% versus 36.5%). (See Table 1.)

Regional and state achievement trends

The White-Minority achievement gap is particularly troubling for the southeastern region where African-American and poor students comprise a comparatively larger proportion of the school-age population than the rest of the nation (Hodgkinson, 2000). In Mississippi, for example, the youth population in 1990 was nearly one-half African-American while the national average was well-below one third. In every southeastern state except North Carolina, the rate of child poverty exceeds the national average.

Although differences in performance on the National Assessment of Educational Progress (NAEP) and the Scholastic Aptitude Test (SAT) narrowed in the 1980s, gaps in the academic achievement between White and African-American students continue remain unacceptably large (Jencks and Phillips, 1998). For example, NAEP data indicate that, since the mid 1970s, the math gap declined by nearly a third and the reading gap by almost half. Yet in 1996, White students were more than five times as likely as African-American students to score at or above the proficient level on the NAEP math exam. In graphing gap trends, Krueger and Whitmore (2001) used data from the National Center for Education Statistics to normalize White and African-American 17-and 9-year-old students' average scores on the NAEP math and reading exam such that the nationwide score and standard deviation in 1996 both equal one. By 1998 the math gap for 17-year-olds was nearly eight-tenths of a standard deviation; the reading gap was over one standard deviation. (See Figure 1.) Gaps in the 9-year-old test data were equally dramatic. The math gap was nearly nine-tenths of a standard deviation; the reading gap was just over nine-tenths of a standard deviation. (See Figure 2.)

Harman and Hood's (2000) analyses reveal that student achievement differences in 1998 North Carolina End-of-Grade test scores aggregated across grades 3-5 mirrors the national picture. Statewide statistics for percent on-grade level by ethnicity shows that 53.9% of African-American students versus 74.8 of White students read at or above grade level. Math scores show that 60.8% of African-Americans students versus 82.2% of White students achieve at or above grade level. (See Table 2.) Significantly, only 2% and 1.5% of all North Carolina schools serve African-American students who perform above the mean in reading and math respectively, whereas 14% and 13% perform one

standard deviation or more below the mean in reading and math, respectively. (See Table 3.)

In schools serving large populations of minority students, southeastern educators and policymakers have responded with numerous strategies, including increased funding, enhanced teacher quality, improved technology, busing for racial balance, state curriculum frameworks, standards, assessment, and accountability systems, pay for performance, expanded learning opportunities, and whole-school reform models (Hassel, 2001). It was not, however, until the late 1990s that charter schools became an option for parents in the southeast, and even then on a limited basis. Restricted to regular public school conversions only (since amended to include start-up schools), Georgia passed the first charter school law in 1993, followed by the less restrictive laws of Florida, North Carolina, and South Carolina in 1996, and the very restrictive Mississippi law in 1997 establishing no more than one charter school per congressional district, for a maximum of five statewide. Alabama has yet to pass charter school legislation.

Although not created for the specific purpose of reducing the White-Minority achievement gap, charter schools enroll a disproportionate number of African-American students whose rates of achievement will, in part, determine the whether or not the school retains its charter. We expect that charter school educators will leverage the greater autonomy afforded them to raise the achievement of African-American students in their charge. In fact, North Carolina charter schools whose stated mission is to serve at-risk (often minority) student populations are granted priority status in the approval process.

Purpose of the study

The purpose of the present study is to explore the impact of charter schools on the White-Minority student achievement gap in North Carolina. Examination of the test score gap between disadvantaged African-American minority students and White students in regular public schools will provide a benchmark by which to examine the gap reduction benefit of charter schools serving disadvantaged minorities and by which to target reduced-gap schools for further study. Although both research questions are articulated below, this paper reports only on the first question. We also intend to articulate recommendations for research, practice, and policy.

Research questions

This study is guided by two overarching questions concerning the impact of charter schools on reducing the White-Minority achievement gap:

1. In North Carolina charter schools serving at least 20 African-American students for two or more years, what levels of student achievement in reading and math End-of-Grade test scores are demonstrated by
    a. Whites versus African-Americans in host district regular public schools?
    b. Whites in host district regular public schools versus African-Americans in charter schools?
2. In North Carolina charter schools serving at least 20 African-American students for two or more years, where African-Americans are achieving at levels exceeding those of their host district regular public school peers, what research-validated characteristics of (a) school and classroom size, (b) teacher quality, (c) principal leadership, (d) espoused mission, and (e) parent involvement might explain the difference?

Delimitations and assumptions

By delimiting the examined charter schools to those extant for at least two years, we attempted to maximize the contribution of the school condition and minimize that of the ideographic variables. End-of-Grade test scores were collected from individuals at the same school for at least two years and are results for the 1999-2000 school year only. Delimiting the analysis to scores from the last year presumes that whatever benefit accrues over time from the school condition will be reliably demonstrated by those scores. Scores from host district regular public school students were restricted to the same condition—two years at the same school. The figure of at least 20 African-American students in a charter school to be included for analysis was selected as the minimum threshold to compile stable gap statistics. Part 1 of this study as articulated herein, offers no explanations for discrepancies in achievement gap differences between charter schools and regular public schools. Charter schools, by their nature, have different reasons for existing and may target specific types of students than the "typical" regular public school. These differences may not be captured by traditional demographic variables.

Methodology

North Carolina End-of-Grade test scores for the 1999-2000 school year were used to compare the gap between (1) regular public school African-American students' test scores and those of regular public school White students; and (2) similar charter school African-American students' test scores and those of regular public school White students. To maximize the contribution of school-based variables, we considered only scores of students enrolled for at least two years in the same school, charter or regular.

Data sources

The North Carolina Department of Public Instruction provided the following test data files, stripped of all social security numbers and names of individuals but including all demographic variables:

1. End-of-Grade test-score data files for individual students attending the same charter school for 2 years, grades 3-8;
2. End-of-Grade test-score data files for individual students attending the same host district regular public school for 2 years, grades 3-8.

Analytical framework

Student achievement, as defined for this study, is attaining proficiency in reading or math[1]. Thus, the White/African-American achievement gap is defined as a difference in proficiency:

$$Gap_{Regular} = \frac{\sum_{i}^{w} P}{n_{iw}} - \frac{\sum_{j}^{ar} P}{n_{jar}}$$

$$Gap_{Charter} = \frac{\sum_{i}^{w} P}{n_{iw}} - \frac{\sum_{k}^{ac} P}{n_{kac}}$$

where P equals 1 for proficiency and 0 otherwise, for:

1. White regular student i to w
2. African-American regular student j to ar
3. African-American regular student k to ac

And n_{iw}, n_{jar}, and n_{kac} are their respective sample sizes.

[1] In North Carolina, proficiency is defined as achieving Level III or IV on an End-of-Grade test. Levels I and II are considered below grade level; Level III is at grade level, and Level IV is above grade level.

To provide more stable gap estimates, only charter schools with at least 20 African-American students were selected for analysis. This criterion resulted in 33 charter schools being selected for study. To compare achievement gaps, individual charter school African-American students were matched to individual African-American regular public school students, within the same district, on the following demographic variables:

- Grade
- Gender
- Parent Education Level[2]

The following gap difference was computed for each charter school, *l*, to examine possible differential achievement gap impacts:

$$Difference_l = Gap_{Charter} - Gap_{Regular}$$

If the difference is negative, a charter school had a smaller achievement gap. If the difference is positive, the charter had a larger achievement gap. No inferential analyses were conducted due to the exploratory nature of the study (no probability sampling was conducted).

Results

Tables 4 and 5 provide gap comparisons for reading and math for each charter school. For reading, the average achievement proficiency gap between host district regular public school White students and their African-American students was 28 points. For similar African-American charter school students and regular school White students, the average gap was 44 points. Thus, charter schools, on average, demonstrated a larger achievement proficiency gap of 16 points. It is important to note that six charter schools had a smaller achievement gap.

For math, the results were similar. The average achievement proficiency gap was 25 points between regular White students and African-American students. The achievement proficiency gap for the matched African American students in charter

[2] Free Lunch Eligibility was not included as a matching variable as several charter schools did not participate in the Free Lunch program.

schools was 46 points. Thus, the average achievement proficiency gap was 21 points greater for charter schools. Five charter schools had smaller achievement gaps in math.

Discussion

Prior to this study, our professional experience in providing technical assistance to charter schools led us to believe that, as in their host district public school neighbors, student achievement varied widely. That an increasing number of African-American parents appeared to believe that charter schools would better serve their children than regular public schools, however, aroused our curiosity. The fundamental question seemed simple: Once in the charter schools, would African-American children do better than their cousins' children in regular district schools? Clearly, education researchers prefer that education consumers make decisions on the basis of fact. Moreover, if we could discover what is going on in the charter schools that seem to be reducing the achievement gap, perhaps we could better assist all schools in doing likewise.

First, however, it is important to reiterate that no inferences can be drawn from the results of this study due to the quantitative-descriptive design employed. We conducted the research to explore and then make explicit the degree to which African-American children, increasingly and disproportionately represented in North Carolina charter schools, achieve at levels exceeding the same-race peers they leave behind. Although it is tempting to conclude that North Carolina charter schools generally fail to reduce the White-Minority achievement gap (and, in fact, appear to increase the gap), the analyses simply do not support such an assertion. No causal links have been established.

Second, although students in this study were matched on grade, gender, and parent education variables, other variables related to poverty, learning disabilities, and behavioral and emotional handicaps—conditions often manifest in the self-selected charter school student population—were not controlled for. Moreover, despite our attempt to control for location by matching students in charter schools with their host district peers, most North Carolina public school districts are coextensive with the entire county, and thus may include a combination of rural, suburban, and urban communities, conditions which research indicates are associated with varying levels of student achievement. It is important to note, however, that rather than due to inadequate design,

the relatively small number of students enrolled in charter schools in any given district would have created untenable statistical instability in the study if additional controls were imposed.

Third, it may be an important finding that, of the six charter schools demonstrating a reduced White-Minority reading achievement gap, five are hosted in only two school districts, three in one district and two in a second district. Similarly, only three districts host the five charter schools where the math gap is reduced; two reside in one district, two in a second district, and the last in a third district. Of the entire eleven reduced-gap charter schools, only four regular public school districts (out of the fifty districts hosting charter schools during the period in question) are accounted for.

Recommendations

The results of this study have not dissuaded us from our earlier observation that student achievement in North Carolina charter schools varies at least as widely as that in regular district public schools. In the case of African-American versus White student achievement, it appears to vary even more. However, we did identify six charter schools where the gap is diminished, thus prompting us to determine the degree to which conditions shown by prior research to positively impact minority student achievement exist in these schools, including school and classroom size, teacher quality, principal leadership, espoused mission, and parent involvement. Future qualitative research will address these conditions in each of the six schools.

Finally, we recommend that particular attention be paid to the finding that the reduced White-Minority achievement gap associated with the charter school condition is prominent in so few school districts. Is the gap smaller because of what the charter schools are doing for minority students or because of what the district schools are failing to do? Are the charter schools in these districts enrolling a more academically (or economically) advantaged group of African-Americans? Inasmuch as this part of the study provides only a description of the comparative achievement patterns, no recommendations will be made at this time for practitioners and policymakers.

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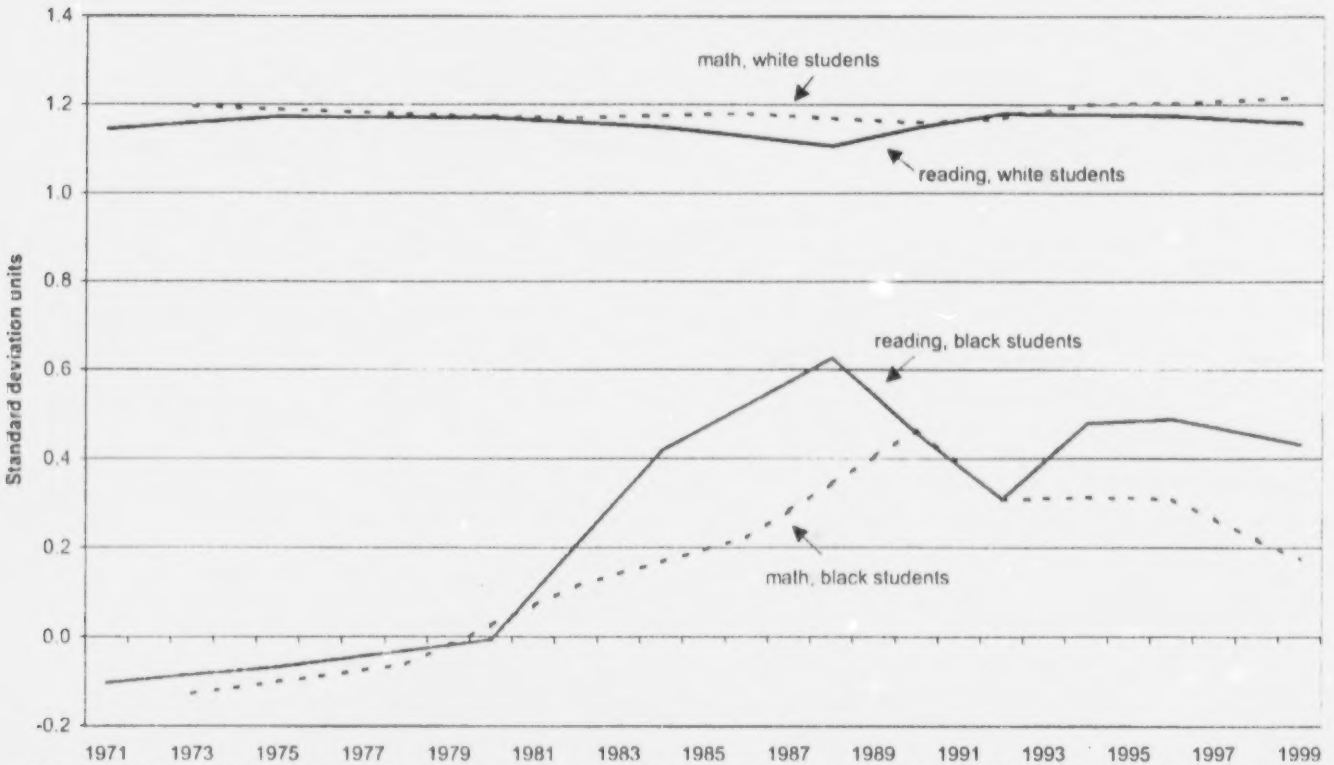
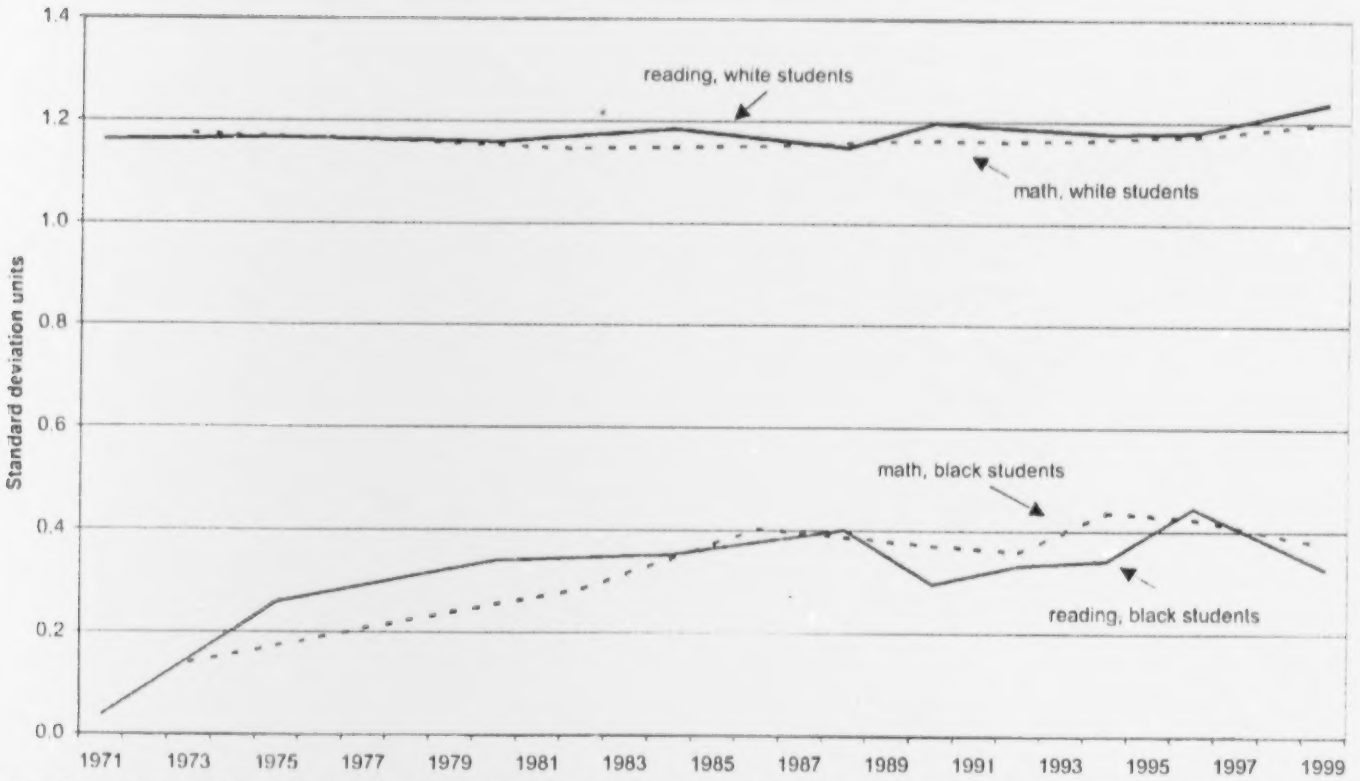
Figure 1
Krueger and Whitmore's (2001) Analysis of Trends in
Reading and Math NAEP Scores by Race, 17-year-olds



Note: Data are from the National Center of Education Statistics. Scores are graphed as one plus the score divided by the 1996 subject-specific standard deviation for all 17 year-olds.

Figure 2
Krueger and Whitmore's (2001) Analysis of Trends in
Reading and Math NAEP Scores by Race, 9-year-olds



Note: Data are from the National Center of Education Statistics. Scores are graphed as one plus the score divided by the 1996 subject-specific standard deviation for all 9 year-olds.

Table 1

Percentage of African-American Students and Free/Reduced Price Lunch Participation in Charter and Regular Schools by US and NC

	US		NC	
	Charter	Regular	Charter	Regular
African-American	27.0	17.0	47.3	31.9
Free/Reduced Lunch	39.0	37.0	34.3	36.5

Table 2

NC Student Statistics on Percent On-Grade Level by Ethnicity

Ethnicity	Percent On-Grade Level	
	Reading	Math
Asian (n=1,531)	73.1	84.1
African-American (n=30,966)	53.9	60.8
Hispanic (n=2,918)	54.0	64.8
Native American (n=1,495)	53.7	61.3
Multi-Racial (n=1,163)	70.5	77.3
Caucasian (n=61,710)	74.8	82.2

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Table 3

Number and Percent of NC Schools with a Significantly Reduced Achievement Gap[1] Between African-Americans and Caucasians in Grades 3-5 Combined

Gap Status	Reading	Math
African-Americans Performing Better	16 (2%)	11 (1.5%)
No Difference	2 (.5%)	6 (1%)
Achievement Gap is greater than 1 standard deviation below the mean	104 (14%)	99 (13%)

[1] As measured by percent proficient (i.e. at or above grade level on EOG tests)

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Table 4
Reading Achievement Gap Comparisons in Regular and Charter Schools

End-of-Grade Reading Proficiency, Grades 3-8			
Charter School	Regular White/Regular African-American Gap	Regular White/Charter African-American Gap	Gap Difference
A	39.93	54.66	14.73
B	21.31	54.22	32.91
C	31.55	68.17	36.62
D	31.55	53.58	22.03
E	31.55	47.83	16.28
F	31.55	59.65	28.10
G	31.55	59.20	27.65
H	32.16	56.24	24.08
I	32.16	29.12	-3.04
J	32.16	24.92	-7.24
K	32.16	45.52	13.36
L	32.16	71.39	39.23
M	32.16	30.76	-1.4
N	27.23	32.11	4.88
O	22.71	41.18	18.47
P	23.69	54.71	31.02
Q	13.38	29.09	15.71
R	34.65	50.99	16.34
S	34.65	55.04	20.39
T	26.07	54.63	28.56
U	26.71	38.57	11.86
V	10.36	25.60	15.24
W	35.32	44.21	8.89
X	10.83	35.55	24.72
Y	30.68	52.18	21.50
Z	19.88	49.30	29.42
AA	23.79	15.98	-7.81
BB	29.34	1.33	-28.01
CC	29.34	5.53	-23.81
DD	29.34	55.59	26.25
EE	29.34	57.07	27.73
FF	29.34	52.15	22.81
GG	24.7	41.77	17.07
Average	27.98	43.87	15.89

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Table 5
Math Achievement Gap Comparisons in Regular and Charter Schools

End-of-Grade Math Proficiency, Grades 3-8			
Charter School	Regular White/Regular African-American Gap	Regular White/Charter African-American Gap	Gap Difference
A	33.96	53.93	19.97
B	22.25	56.5	34.25
C	30.55	52.93	22.38
D	30.55	58.70	28.15
E	30.55	54.98	24.43
F	30.55	61.68	31.13
G	30.55	60.79	30.24
H	27.95	71.10	43.15
I	27.95	39.62	11.67
J	27.95	20.94	-7.01
K	27.95	40.16	12.21
L	27.95	58.37	30.42
M	27.95	34.93	6.98
N	27.05	40.87	13.82
O	22.58	42.60	20.02
P	12.56	60.12	47.56
Q	14.44	30.08	15.64
R	33.21	66.64	33.43
S	33.21	65.78	32.57
T	21.13	45.25	24.12
U	18.73	48.52	29.79
V	13.14	39.89	26.75
W	29.43	44.79	15.36
X	9.6	4.51	-5.09
Y	24.42	56.69	32.27
Z	24.31	34.86	10.55
AA	16.59	2.69	-13.9
BB	27.83	15.85	-11.98
CC	27.83	0.56	-27.27
DD	27.83	64.48	36.65
EE	27.83	64.56	36.73
FF	27.83	65.54	37.71
GG	16.02	48.33	32.31
Average	25.22	45.67	20.45

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